

CLAIMS

1. An antenna structure that comprises a feeding radiation electrode including one end serving as a feeding end and the other end serving as an open end and performing an antenna operation in a plurality of resonant frequency bands and a non-feeding radiation electrode electromagnetically coupled to the feeding radiation electrode and performing an antenna operation in a plurality of resonant frequency bands and that is capable of performing radio communication in at least four resonant frequency bands, the lowest fundamental resonant frequency band and a higher-order resonant frequency band higher than the lowest fundamental resonant frequency band among the plurality of resonant frequency bands of the feeding radiation electrode and the lowest fundamental resonant frequency band and a higher-order resonant frequency band higher than the lowest fundamental resonant frequency band among the plurality of resonant frequency bands of the non-feeding radiation electrode, wherein a main slit is formed in the feeding radiation electrode by cutting the feeding radiation electrode from an electrode edge of the feeding radiation electrode, wherein one side of both sides of the main slit located at an edge of the feeding radiation electrode that are separated by the main slit serves as the feeding end and the other side of the both sides of the main slit located at the edge of the feeding radiation electrode that are separated by the main

slit serves as the open end, wherein the feeding radiation electrode has a folded shape and includes a U-turn portion in the middle of a path circumventing the main slit from the feeding end toward the open end, and wherein a sub-slit for forming an open stub that is connected to the U-turn portion and that provides the U-turn portion with electrostatic capacitance is formed, independent of the main slit, in the feeding radiation electrode.

2. The antenna structure according to Claim 1, wherein the main slit has a bent shape including a U-shaped portion.

3. The antenna structure according to Claim 1 or 2, wherein the feeding radiation electrode is bent in accordance with a virtual extension line of the sub-slit serving as a bending line.

4. The antenna structure according to Claim 1, 2, or 3, wherein the feeding radiation electrode and the non-feeding radiation electrode are mounted on a dielectric substrate.

5. The antenna structure according to any one of Claims 1 to 4, wherein each of an edge of the feeding end of the feeding radiation electrode and an edge of the non-feeding radiation electrode that is adjacent to the edge of the feeding end of the feeding radiation electrode with a gap therebetween serves as a short-circuited portion for grounding, and wherein the distance

between outline sides, which face each other, of the feeding radiation electrode and the non-feeding radiation electrode that are adjacent to each other increases in a direction from an end of the short-circuited portion of each of the outline sides toward an end opposite to the end of the short-circuited portion.

6. The antenna structure according to any one of Claims 1 to 5, wherein each of an edge of the feeding end of the feeding radiation electrode and an edge of the non-feeding radiation electrode that is adjacent to the edge of the feeding end of the feeding radiation electrode with a gap therebetween serves as a short-circuited portion for grounding, and wherein each of the feeding radiation electrode and the non-feeding radiation electrode is provided at an end on a shorter side of a rectangular substrate such that the short-circuited portion is connected to the shorter side of the substrate.

7. The antenna structure according to Claim 5 or 6, wherein at least one of the feeding radiation electrode and the non-feeding radiation electrode is one of a plurality of radiation electrodes, and wherein the feeding radiation electrode and the non-feeding radiation electrode are aligned in a line such that the short-circuit portions are aligned on the same side.

8. A communication apparatus comprising the antenna structure

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as set forth in any one of Claims 1 to 7.